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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/015,896	12/17/2001	Yong Sung Ham	49128-5033	7304
9629	7590	07/08/2004	EXAMINER	
MORGAN LEWIS & BOCKIUS LLP 1111 PENNSYLVANIA AVENUE NW WASHINGTON, DC 20004			LAO, LUN YI	
			ART UNIT	PAPER NUMBER
			2673	8

DATE MAILED: 07/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/015,896

Applicant(s)

HAM, YONG SUNG

Examiner

Lao Y Lun

Art Unit

2673

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2004.
2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-14 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.



DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over in view of Uehara et al (6,329,980) in view of Furuhashi et al (6,556,180).

As to claims, Uehara et al teach a color LCD display apparatus for increasing a data voltage of a current frame if the data voltage of the current period is greater than the previous period, and decreasing the data voltage of the current frame if the data voltage of the current period is less than the previous period (see figures 1, 4-6, 14; column 1, lines 49-51 and column 9, lines 6-60).

Uehara et al fail to disclose a period is a frame period. Furuhashi et al teaches a delay period is a frame period (see figure 1 and column 2, lines 32-43). It would have been obvious to have modified with the teaching of Furuhashi et al, since Uehara et al have been disclosed a delay period could be changed (see Uehara et al's column 7, lines 9-16), a frame period is a common delay period in a display and it has been generally recognized as being within the level of ordinary skill in the art, so as



to increase the speed of displaying a high quality picture by extending the comparison period by one dot period to one frame period.

As to claim 2, Uehara et al teach a method for increasing data voltage of the current frame is proportionally increased with respect to a difference between the current data voltage and the previous data voltage(see figure 6).

As to claims 3-4, Uehara et al teach a data voltage having most significant bit data(VDL4) and least significant bit data(VDL1)(see figures 4-6, 14 and column 20, lines 2-4).

As to claims 8 and 14, Matsumura et al teach an LCD display apparatus having a loop-up table(5)(see figure 4 and column 5, paragraph 0063).

As to claim 9, Matsumura et al teach an LCD display apparatus having a liquid crystal display panel(20); a timing controller(23); a data driver(22) and a gate driver(21)(see figure 6 and column 1, paragraph 0002).

1. Claims 5-7, 10-11 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over in view of Uehara et al in view of Furuhashi et al and Kuga(5,828,367).

Uehara et al fail to disclose display apparatus for decreasing a data voltage of a current frame if the data voltage of the current frame is the same as the previous frame.

Kuga teach an LCD display apparatus for decreasing a data voltage of a current frame if the data voltage of the current frame is the same as the previous frame(see figures 4-5; column 2, lines 33-39 and column 5, lines 17-25). It would have been



obvious to have modified Uehara et al as modified with the teaching of Kuga, so as to save power in an LCD display(see abstract and column 2, lines 33-39).

2. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over in view of Uehara et al in view of Furuhashi et al, Kuga(5,828,367) and Kasahara et al(6,414,657).

Uehara et al fail to disclose a comparator having an exclusive logic.

Kasahara et al teach a comparator(62b) having an exclusive-OR operation(see figure 21 and column 27, lines 37-52). It would have been obvious to have modified Kasahara et al as modified with the teaching of Kasahara et al, since Uehara et al having a comparator(2)(see figure 4) and an exclusive-OR logic function could perform comparison function by determining whether two input data are different or same

Response to Arguments

3. Applicant's arguments filed on May 27, 2004 have been fully considered but they are not persuasive.

Applicant argues that Uehara et al fail to disclose a method for decreasing the data voltage of the current frame if the data voltage of the current frame is not greater than that of the previous frame on page 4. However, see figures 5-6 and column 9, lines 19-35). Furuhashi et al teach a delay period is a frame period of comparing current frame data with the previous frame data(see figure 1 and column 2, lines 32-42). It would have been obvious to have modified Uehara et al with the teaching of



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Furuhashi et al, so as to increase the speed of displaying a high quality picture by extending the comparison period by one dot period to one frame period. The combination of Uehara et al and Furuhashi et al teach the feature of decreasing the data voltage of the current frame if the data voltage of the current frame is not greater than that of the previous frame.

Applicant state that the examiner need to provide the evidence of a frame period is a common delay period in a display on page 5. However, Furuhashi et al teach a a frame period is a delay period and the frame is common delay period since it is convenience to compare frame data(see figure 1 and column 2, lines 33-50).

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.



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5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lun-yi, Lao whose telephone number is (703) 305-4873.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala, can be reached at (703) 305-4938.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

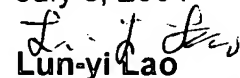
or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

July 5, 2004


Lun-yi Lao

Primary Examiner